DOCUMENT RESUME

ED 268 077 SP 027 163

AUTHOR Jones, Elizabeth Emily; Plas, Jeanne M.
TITLE A Profile of the Physical Fitness Patron: Perceptions of Physical Self, Perceived Benefits, Social Influences, and Self-Esteem.
PUB DATE [86]
NOTE 45p.
PUB TYPE Reports - Research/Technical (143) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Motivation; *Participant Characteristics; *Physical Fitness; *Self Esteem

ABSTRACT

This study examined the characteristics and attitudes of experienced fitness patrons in order to explore the motivations and characteristics of persons who have chosen to incorporate aerobic activities into their daily lives. Using the Tennessee Self-Concept Scale and the Physical Fitness Profile (developed for this study), a profile of physical fitness patrons was generated. Within the sample of exercisers (N=252), subgroups could not be differentiated by such demographic markers as age or sex, but only by such lifestyle indicators as exercise history or plans for continuing exercise. The exercisers, located in a large southern city, were more homogeneous with respect to self-esteem than the general population, and had significantly lower self-esteem scores as a group than the general population. Persons new to fitness training had elevated levels of self-esteem relative to fitness center patrons, while persons who had exercised for 6 to 12 months reported the lowest levels of self-esteem. Further study should be conducted regarding the apparent lowering and other changes in self-esteem among fitness center patrons. (Author/CB)

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ED268077

A Profile of the Physical Fitness Patron: Perceptions of Physical Self, Perceived Benefits, Social Influences, and Self-Esteem

Elizabeth Emily Jones and Jeanne M. Plas

George Peabody College of Vanderbilt University

SP 021163

Running head: PHYSICAL FITNESS PROFILE

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Abstract

Increased self-esteem, elevated affect, and improved cognitive processing have all been linked with aerobic training. However, many methodological issues, such as the study of predominantly sedentary persons following brief exposure to aerobic exercise programs and generalization to serious exercisers, limit the utility of these earlier findings. The present study, thus, employed experienced fitness patrons, in order to explore the motivations and characteristics of persons who have chosen to incorporate aerobic activities into their daily lives. Utilizing the Tennessee Self-Concept Scale (Fitts, 1965), and the Physical Fitness Profile (developed for this study), a profile of the physical fitness patron was generated. Within the sample of exercisers, subgroups could not be differentiated by usual demographic markers (e.g. age and sex), but only by lifestyle indicators (e.g. exercise history and plans for continued exerise). This sample of exercisers proved to be more homogeneous with respect to self-esteem than the U.S. population, and to have significantly lower self-esteem scores than the U.S. population. Further, persons new to fitness training had elevated levels of self-esteem relative to the fitness center patrons, while persons who had exercised for 6 months to 1 year reported the lowest levels of self-esteem. Suggestions for further study with respect to the lowered self-esteem, and the possible alterations in self-esteem over time in a fitness program are discussed.

A Profile of the Physical Fitness Patron: Perceptions of Physical Self, Perceived Benefits, Social Influences, and Self-Esteem

In recent years, Americans have become more fitness conscious, fitness centers have increased in number and popularity, and the positive benefits of exercise have been espoused through the media. Corporations have begun to consider financial benefits accrued as a result of lower health care costs and fewer days lost due to disability among employees engaged in fitness programs (e.g. Bowne, Russell, Morgan, Optenberg, & Clarke, 1984). While a clear case seems to have emerged for physiological benefits from exercise, accompanying psychological effects are not clear. If exercise really does lead to a "better", longer life, then several additional issues should be considered. First, the specific benefits and risks associated with various forms of exercise should be explored. Further, the factors which lead a person to seek fitness should be understood if participation by more sedentary individuals is to be encouraged.

Addressing the concern of effects of exercise, researchers in the fields of medicine and psychology have pursued a variety of lines of study. According to results from population studies, individuals who are physically active are less prone to coronary heart disease (Fox & Haskell, 1968). Yet, when risk factors related to coronary heart disease (e.g. blood pressure, cholesterol, triglycerides, and glucose levels) were explored in fit, as well as sedentary persons, differences in levels of these factors emerged only as weak trends (Sedgwick, Taplin, Davidson, & Thomas, 1984). While this weak support may lead to questions concerning the utility of exercise, Haskell and Superko (1984) point out that no study has ever found an increase in coronary heart disease following enhanced fitness.

Less disputed physiological effects include decreases in obesity, hypertension, "type A" personality characteristics, elevated blood lipids, and associated risks of cigarette smoking (Blumenthal, Williams, Williams, & Wallace, 1980; Greist et al., 1979). After at least one year of aerobic exercising, supine and standing systolic blood pressures decreased in middle-aged men (Paolone, Lewis, Lanigan, & Goldstein, 1976). Further, for persons who remain physically active, the physical decline associated with aging is slowed dramatically (Kasch, 1976; Pollock, 1978). For instance, Spirduso (1983) employed an animal model in order to remove motivational considerations in a study of aging and physical fitness. The decline in reponse rate frequently associated with aging was slowed in exercised rats relative to their sedentary counterparts. This slower decline was accompanied by a slower decrease in the number of dopamine producing neurons in the nigrostriatal system. Finally, on a more immediate level, exhaustive exercise in men and women was followed by an increase in slow-wave sleep (the restorative phase of sleep) at the expense of rapid eye movement (REM) sleep (Bunnell, Bevier, & Horvath, 1983a). However, the increase in slow-wave sleep is found only after very strenuous exercise (Bunnell, Bevier, & Horvath, 1983b). Further, investigators have suggested that the observed sleep differences between fit and unfit participants may, in fact, be due to pre-existing differences between people who have chosen to pursue athletic and people who have chosen sedentary lifestyles (Paxton, Montgomery, Trinder, Newman, & Bowling, 1982; Paxton, Trinder, & Montgomery, 1983). Thus, many physiological changes resulting from increased physical activity have been documented, and many others are subjects of continuing investigation.

Several studies noted physical changes such as improved circulation and decreased

hypertension (Groen et al., 1982; Lichtman & Poser, 1983) which are affected also by psychological variables. Additionally, factors such as anxiety, depression, and introversion were predictive of failure to comply with medical therapy following myocardial infarction (Blumenthal, Williams, Wallace, Williams, & Needles, 1982). Thus, it can be hypothesized that physical fitness affects both physical and psychological fitness.

A series of projects has addressed this question. As a rule, some form of aerobic exercise program was introduced to a sedentary group, while a control group remained inactive. At the conclusion of the program, physical and psychological changes were assessed. While control groups remained essentially unchanged, the exercisers improved physically, demonstrated improved self-esteem (Brown, Morrow, & Livingston, 1982; Folkins & Sime, 1981; Hilyer & Mitchell, 1979), lowered depression and anxiety (Berger & Owen, 1983; Blumenthal, Williams, Needels, & Wallace, 1982; Folkins, Lynch, & Gardner, 1972), and lowered levels of tension and fatigue (Berger & Owen, 1983; Blumenthal, Williams, Wallace, et al., 1982). These psychological changes were clear in clinical and sedentary populations, but not as clear in normal, active adults. Morgan, Roberts, and Feinerman (1972) assessed changes immediately following acute physical activity, rather than at the conclusion of an aerobic exercise course, and found no such improvements. Apparently, aerobic exercise on a regular basis leads to improved physical functioning and may, or may not, be accompanied by improved psychological functioning.

Increasingly, physical fitness is studied in relation to emotional stress. While

psychosocial stressors utilized in these studies seldom were accompanied by physical work, cardiovascular and biochemical changes were, nonetheless, evidenced (Sinyor, Schwartz, Peronnet, Brisson, & Seraganian, 1983). Fitness level was not related to the magnitude of the response to psychosocial stress, yet fit subjects demonstrated faster physiological and subjective emotional recovery rates (Cox, Evans, & Jamieson, 1979; Keller & Seraganian, 1984; Sinyor et al., 1983).

On an intervention level, exercise has been described as a safe prescription for depression (Brown, Ramirez, & Taub, 1978). Promising results concerning the efficacy of aerobic exercise with depressed patients have been demonstrated (Greist et al., 1979), including maintenance of affective gains at a three-month follow-up period (Doyne, Chambless, & Beutler, 1983). Greist, Klein, Eichens, and Faris (1978) advocate running as an effective supplement to psychotherapy in treating depressed patients, while others suggest swimming as an equally efficacious psychotherapy supplement (Berger & Owen, 1983). Yet, an A-B-A-B design for studying mood elevation following exercise yielded results which were not significant (Hartz, Wallace, & Cayton, 1982). Brown et al. (1978) argue that exercise has proven to be an effective treatment, with specific quantifiable physiological changes. However, they were not able to demonstrate the mechanism of improvement.

Findings concerning physical functioning and its relation to cognitive functioning are, perhaps, the least clear in this body of research (Lichtman & Poser, 1983). Gutin (1965) compared the performances of two groups of students on a series of mental tasks. One group consisted of physical fitness class members, while the other group was

considered to be inactive. While no significant differences were found between groups, a relationship emerged between degree of physical improvement and degree of mental task improvement. Yet, the choice of groups for comparison--both sedentary initially--may not have been appropriate to the research question.

This question of appropriate subjects for study has, in fact, presented methodological problems in many of these studies (Folkins & Sime, 1981). Many studies used constrast groups that confounded choice of participation with physical condition. One reponse to this problem has been the study of marathon runners compared to other runners. Using the Cattell 16 Personality Factor Questionnaire, Hartung and Farge (1977) found marathon runners to be more intelligent, imaginative, and shy than the general population. Another study, however, found runners to be no different than the general population on any variable except anxiety--marathon runners reported lower anxiety levels than the norm group (Morgan & Costill, 1972).

This line of research also addresses the second issue--delineating characteristics of individuals who choose to exercise regularly. An understanding of the factors affecting motivation to pursue fitness-related behavior is needed. The study presented here considered this issue with people who actively condition their bodies at fitness centers. The centers selected promote anaerobic conditioning (muscle development and toning), while patrons were assumed to have been active participants in aerobic exercise activities (exercise which enhances oxygen uptake) outside of the centers' programs.

Rather than compare these fitness seekers with sedentary counterparts, the present

study explored the profile of the fitness-oriented person. In an effort to determine why these people choose to exercise and to pursue conditioning, several measures were employed. The Tennessee Self- Concept Scale (Fitts, 1965) provided several measures of self-esteem and self-concept. Self-esteem is reported to be enhanced following aerobic conditioning (Brown, Morrow, & Livingston, 1982; Folkins & Sime, 1981; Hilyer & Mitchell, 1979)in sedentary populations. Use of a self-concept measure with an aerobially fit sample allowed for exploration of self-esteem level in people who have been and continue to be involved in exercise programs. The Physical Fitness Profile, developed for this study to assess attitudes toward and influences on training, supplemented the self-concept scale. Together, these measures provided a profile of the fitness center patron. Due to suggested sex differences in outlook toward exercise (Corbin & Nix, 1979; Wark & Wittig, 1979), and possible age-related differences in psychological benefits from exercise (Hogan & Santomier, 1984; White et al., 1984), subgroups of the sample of fitness center patrons were compared to uncover relevant differences within the sample. Through understanding this population, perhaps intervention for the health of more sedentary individuals may be more effectively designed.

Method

Participants

Research participants were drawn from the patrons of a major nationally-known fitness program. The mailing list of members of the Nautilus Fitness Centers in a large southern city was utilized to solicit participation in this study. Members of the Nautilus Fitness Centers (persons on the mailing list), frequent the facilities located in three areas of the city.

Of the approximately 700 members, nearly 50 percent are female. Most members reside in suburban neighborhoods or university communities. Many of the newer members (an urban location) are professionals. This group of physical fitness facility patrons was selected as a group which might represent fitness-conscious persons who approach exercising in a serious manner. Persons who operate these centers have reported that the average patron has been involved in other kinds of fitness programs, largely aerobic programs, prior to joining the Nautilus program. Further, while the program focuses on anaerobic training (with machine-assisted weight lifting), aerobic equipment (exercise bikes and treadmills) are also available.

Respondents (N = 252) to the questionnaire approximated the distribution of patrons approached--females comprised 45% of the responding sample. Ages ranged from below 20 to over 60 years of age, with the largest concentration of the sample (45%) in the 30-39 year age group. There was little variability in terms of occupation, with a sizeable majority reporting work in a professional specialty (56%) or administrative position (32%). Finally, education levels spanned from "some high

school" to doctoral level, with 29% having completed four years of college, 21% a doctoral degree (many of these are medical doctors), and 26% some graduate work or a master's degree.

Instruments

The Tennessee Self-Concept Scale. To yield a measure of overall self-esteem, the Tennessee Self-Concept Scale (Fitts, 1965) was employed. The scale yields measures of overall self-esteem, physical self, and personal self. Other scores include family self, social self, and self-criticism. From a standardization sample of 626 participants (12-65 years of age), Fitts (1965) reported two week test-retest reliability coefficients that ranged from .75 on the Self-Criticism score to .92 on the Total Positive, or overall self-esteem score.

The Physical Fitness Profile. Designed for this study, the Physical Fitness Profile (see Appendix) consists of 62 items presented in a 7-point Likert format, ranging from "1"-strongly disagree, through "4"-neutral, to "7"-strongly agree. Items were designed to address the following areas believed to be important to fitness related behavior: perception of physical fitness, social and family influences, factors influencing pursuit of physical fitness, and body image. Items 44 through 48 were extracted and modified from a study of obesity (Andrise,1983). These items represent a cohesive cluster related to weight status in this earlier study. Additionally, six general, demographic questions and fitness history questions appear. Cronbach's alpha for the total scale for this sample is 0.76.

Procedure

Research participants received a questionnaire packet in the mail. Included in this packet were a cover letter explaining the nature of the study and requesting participation, the Tennessee Self-Concept Scale, the Physical Fitness Profile, and a stamped return envelope. Participants were requested to complete the questionnaires and return them to the researcher. Questionnaires were then analyzed in order to generate a profile of the physical fitness center patron, the physical fitness seeker.

Results

The Sample

Respondents comprised a group of men and women of various ages, education levels, and exercise histories. Analyses were conducted on protocols that were complete, i.e. no missing data, thereby reducing the sample size to 212 participants. Response ranges for some of the demographic variables were collapsed from the 7-point ranges to allow for analyses despite a limited range of responses within some of the subgroups. This was true for age, exercise plans, unsuccessful weight loss programs, and education levels.

Slightly more than half (55%) of the sample were men. More than half of the men (55%) were married, while 38% of the women were married. Further, 30% of the men and 38% of the women are single. While over half of the participants have no children, 10% have one child, 17% have two children, and 16% have three or more children. Yet, little variability is apparent with respect to occupation--56% of the sample report work in a professional specialty, while 32% work in an administrative capacity, and 9% are students, retired, or unemployed.

The majority of respondents plan to continue to exercise for the rest of their lives (70% of the men and 76% of the women). Approximately half of the group members have not been involved in any unsuccessful weight loss programs (56% of the men and 45% of the women). However, the groups are less consistent with respect to exercise history, with 17% of the sample reporting histories of less than 6 months, and 21% reporting histories of exercising for most of their lives.

Contingency analyses among the independent variables revealed some significant associations. Education was associated with both age, $\chi^2(36, N=212) = 148.72$, $p < .05$ and sex $\chi^2(6, N = 212) = 19.46$, $p < .05$, with persons over 40 years having advanced degrees while persons under 30 more frequently had 4 years of college or less. Further, men reported more completed graduate degrees while women reported some graduate school or less. Age was also associated with marital status, $\chi^2(24, N = 212) = 85.24$, $p < .05$, and number of children, $\chi^2(16, N = 212) = 48.75$, $p < .05$. Younger persons were more often single and had fewer children than older persons, who were more often married or divorced. Finally, age was related to exercise plans, $\chi^2(36, N = 212) = 59.68$, $p < .05$. Younger respondents reported the full range of responses while older persons were more apt to report long range exercise plans.

Exercise history was associated with both gender, $\chi^2(6, N = 212) = 13.96$, $p < .05$, and exercise plans, $\chi^2(36, N = 212) = 68.91$, $p < .05$. Women reported extremes (less than one year and most of life) while men reported mid-range exercise histories (2 - 6 years). Further, while a varied response set was evident, persons reporting an extreme (< 6 months or most of life) exercise history tended to report an extreme, in the same direction, in exercise plans. Finally, exercise plans were associated with number of unsuccessful weight loss programs, $\chi^2(36, N = 212) = 54.10$, $p < .05$. Persons who have been involved in just one unsuccessful weight loss program reported shorter range exercise plans than did both persons who have never experienced an unsuccessful weight loss program and persons who have experienced more than one such program.

Overall, these exercisers reported that they enjoy working out ($M = 5.92$, or

moderately agree) and feel happier when they exercise regularly ($M = 6.53$, or strongly agree). While encouragement by program staff is reported as an important component of the exercise program ($M = 5.25$), personal attention by staff is reported as not important ($M = 2.74$). Respondents vary on the influence of the cost of an exercise program, but agreed that a program must be conveniently available for them to take advantage of it ($M = 5.75$). Contingency tests of association demonstrate a relationship between gender and importance of encouragement by program staff, $\chi^2(6, N=212) = 16.41$, $p < .05$. Women tended to report greater importance of encouragement by staff.

Finally, a series of 54 analyses of variance were run--6 ANOVAs for each of the TSCS and PFP subscales. The analyses yielding significant results are summarized in Tables 1 and 2. Of the 54 analyses, only 10 demonstrated significant differences by dependent variables.

The Physical Fitness Profile

A factor analysis of this measure yielded four orthogonal factors. Items which did not belong to a set, conceptually, or which were not strongly associated (factor loadings $< .40$) with a set were eliminated from the sets in constructing subscales. The resulting item sets form four subscales: Perception of Physical Self, Perceived Benefits, Family and Social Influences, and Perception of Weight.

Cronbach's alpha was used to determine the reliability of these four scales. Due to a low reliability ($\alpha = .26$) of the 7-item Perception of Weight subscale, subsequent analyses included only three subscales from the Physical Fitness Profile. When item 7 was deleted from the scale, the reliability increased to .39. This was not considered high

enough for inclusion in the analyses. Among the items on this subscale are the 3 items extracted from Andrise's (1983) study.

The Perception of Physical Self subscale consists of twelve items--summed to yield a subscale score. Three of the iems (preceded by an asterisk in the Appendix) are coded negatively (i.e. reverse "agree" and "disagree" in the responses) before entering the subscale score. Using the 212 complete protocols, the alpha reliability for this subscale is .63. The Perceived Benefits subscale consists of 13 items, with an alpha reliability for this sample of .80. Finally, the Family and Social Influences subscale, consisting of 8 items, has an alpha reliability of .72.

With a possible range of 12 to 84, the Perception of Physical Self subscale addresses one's views of physical condition, state of health, and body image. A high score reflects a positive view of one's physical state. The Perceived Benefits subscale yields a score ranging from 13 to 91. Items cover issues related to health improvements, changes in appearance and physical condition, emotional alterations, and decreased stress, viewed as a direct result of exercise. A high score reflects a feeling of benefitting in these diverse areas due to exercise involvement. Addressing values and expectations of family and friends, the 8-item Family and Social Influences Subscale has a possible range of 8 to 56. A person whose friends and family value and expect physical conditioning would report a high score on this scale.

Self-Esteem

The Tennessee Self-Concept Scale (Fitts, 1965) was standardized on a sample consisting of 626 participants of varied educational and occupational backgrounds and

ages. Mean scores and standard deviations for Fitts' sample and for the present sample are reported in Table 3. Hartley's test for homogeneity of variance demonstrated that the Fitness Center sample was less variable on all measures. Thus, an alternative formula (Winkler & Hays, 1975), designed to handle this deviation from an assumption of t-tests was used.

Insert Table 1 About Here

T-test comparisons of the mean self-esteem scores for the two groups indicate that the fitness center sample reports significantly lower levels of self-esteem than the standardization sample, on all six measures of self-esteem ($p<.001$ for each of the six comparisons).

Subgroup Differences on Physical Fitness Subscales

Perception of Physical Fitness (SPHY) analysis of variance results are summarized in Table 1. There were no significant interactions in either analysis. Significant main effects occurred for exercise plans, $F(1,190) = 6.86; p < .01$, exercise history, $F(2,190) = 8.42$, $p < .01$; unsuccessful weight loss programs, $F(2,190) = 3.77$, $p < .05$; and age, $F(2,183) = 3.06, p < .01$. Post hoc comparisons demonstrate that people who plan to continue to exercise for up to 2 years have a more negative perception of physical state ($M = 46.03$) than people who plan to continue to exercise for more than 2 years ($M = 57.66$). Considering exercise history, the three groups--(1) up to 1 year, ($M = 48.07$); (2) 1-4 years, ($M = 54.35$); and (3) 4 years to most of life, ($M = 62.44$)--all differ significantly from one another. The longer the history of exercise, the more positive the perception of physical state. A negative relationship

emerged between number of unsuccessful weight loss programs and evaluation of one's physical state. The sample was divided into three groups: (1) those who have never been involved in an unsuccessful weight loss program, (M = 59.32); (2) people who have been in one such program, (M = 53.06); and (3) people involved in two or more programs, (M = 49.90). Each group is significantly different from the others, with the highest average self-appraisal of physical fitness occurring in the group with no unsuccessful weight loss programs, and the lowest appraisal in the group of two or more programs. Finally, age was considered in groupings of: (1) up to 29 years, (M = 57.78); (2) 30-39 years, (M =); and (3) 40 years and older, (M = 51.92). While the 30s group did not differ from any group, the youngest group scored significantly higher on the Perception of Physical Fitness subscale than the older group.

Insert Table 2 about here

Perceived Benefits (PRBN) subscale analysis of variance results are summarized in Table 1. Two interactions are significant-- age by sex, $F(2,173) = 4.11$, $p < .05$, and age by exercise history, $F(10,173) = 2.47$, $p < .01$. Additionally, a significant main effect was noted for exercise plans, $F(2,191) = 5.88$, $p < .01$. For men, no significant differences appeared across ages. Women up to 29 (M = 84.90), and 30-39 (M = 83.61) perceive more benefits as a result of exercise than do women 40 and older (M = 77.89). The interaction of age and exercise history is accounted for by the 40 and older age group. In this group, persons who have exercised for six months or less perceive fewer benefits from exercise (M = 72.25) than persons who have exercised for six years or more (M = 82.19). No other groups differed significantly. Finally, the main effect for

exercise plans is due to fewer perceived benefits among people planning to exercise for one year or less ($M = 76.74$) as compared to people planning to exercise for four years or more ($M = 82.16$). Those planning one to four years of exercise were intermediate and did not differ from either group ($M = 78.74$).

The Family and Social Influences (SFAM) subscale analyses of variance result in a three-way interaction of exercise history, age, and sex, $F(10,173)=2.05$, $p<.05$, as well as a main effect for unsuccessful weight loss programs, $F(2,190) = 3.86, p < .05$ (see Table 1). For women 40 years and older, those who have exercised for 2 to 4 years report less positive influence and encouragement for exercise by family and friends ($M = 21.50$) than do women 40 and older who have exercised for 4 to 6 years ($M = 52.00$) and those who have exercised for 6 years and longer ($M = 41.20$). No other groups differed significantly. The main effect for unsuccessful weight loss programs emerges due to people who have been involved in 4 or more programs reporting lower values and expectations of family and friends ($M = 28.67$) than values reported by people involved in 1 to 3 programs ($M = 35.67$) and than people involved in no programs ($M = 35.53$).

Subgroup Differences on TSCS Subscales

Overall self-esteem (P) scores were entered in several analyses of variance. A significant three-way interaction emerged (see Table 2) for exercise plans by exercise history by education, $F(3,192) = 4.95, p < .01$. Post hoc comparisons reveal the difference to occur in the group with an education level of up to 4 years of college and who plan to exercise for up to 4 years. In this subgroup, people who have exercised for 6 months to 1 year report significantly lower self-esteem ($M = 258.75$) than people who have exercised for less than 6 months ($M = 270.90$). People with longer exercise

histories did not differ significantly from either of the short-history groups (M = 267.50, M = 263.67, for 1 to 2 years and 2 or more years, respectively).

Insert Table 3 about here

Physical Self-Esteem (PHS) score analysis of variance results are summarized in Table 2. An exercise history by age interaction, $F(10, 173) = 2.07$, $p < .05$, emerged due to people in the 40 and older group. Here, people who have exercised for 4 to 6 years report significantly higher senses of self-worth in the physical realm (M = 56.50) than do people who have exercised for 1 to 2 years (M = 49.33), or 2 to 4 years (M = 49.46). No other differences reached the .05 level of significance.

Personal Self-Esteem (PES) score analysis of variance results are summarized in Table 2. Significant interactions emerged for exercise plans by age by sex, $F(4,90) = 4.39, p < .01$,and for exercise plans by unsuccessful weight loss programs, $F(2,189) = 3.58, p < .05$. Post hoc comparisons revealed the nature of these differences. The three-way interaction of exercise plans, age, and sex is fairly complex. Men in the 30 to 39 year range report higher personal self-esteem with plans to exercise for up to 1 year (M = 61.33) than men in this age group who plan to exercise for 4 years or more (M = 55.64). Men, aged 30-39 who plan to exercise for 1 to 4 years do not differ significantly from either of these groups (M = 56.50). Further, men in the 40 years and older group who plan to exercise for up to 1 year report significantly lower personal value (M = 50.67) than men in this age range who plan to continue to exercise for 1 to 4 years (M = 63.00), and than men who plan to exercise for 4 and more years (M = 55.70).

Similarly, women who are 40 years and older report significantly lower personal value when exercise plans are 1 to 4 years ($M = 49.00$) than when exercise plans are longer, 4 years or more ($M = 57.57$).

Addressing the two-way interaction on the personal self-esteem measure, post hoc comparisons for exercise plans by unsuccessful weight loss programs reveal differences among people reporting involvement in one unsuccessful weight loss program. In this group, those who plan to exercise two years or more report a higher personal self-esteem score ($M = 56.23$) than do people who plan to continue exercising for up to two more years ($M = 53.07$).

A sizable number (44/54) of the analyses of variance were not significant. Family Self-Esteem analyses of variance and Social Self-Esteem analyses of variance did not yield significant interactions nor main effects for the variables of interest (e.g. exercise plans, exercise history, weight loss programs with age, gender, and marital status). Additionally, analyses of variance of relevant variables for ability for self-criticism did not demonstrate either significant interactions or main effects. Further, age by sex by education analyses were not significant for any of the subscales.

Relationships Among Dependent Variables

Pearson product moment correlations were calculated for the Tennessee Self-Concept Scale scores and the Physical Fitness Profile Subscale scores with the independent variables. Significant correlations were present between Physical Self-Esteem with Perception of Physical Self, Personal Self-Esteem, and Family and Social Influences; Personal Self-Esteem with Perceived Benefits, Overall Self-Esteem, and

gender; and Self-Criticism with Perceived Benefits, Overall Self-Esteem, age, gender, marital status, and exercise plans. Overall self-esteem is not significantly correlated with any of the Physical Fitness Profile subscales, nor is Social self-esteem.

Discussion

Sample

Fitness center patrons are not typical of American adults in general. This sample had a greater percentage of men than was expected based on U. S. population data (United States Department of Commerce, Bureau of the Census, 1982). Additionally, a smaller percentage of this sample was then, or ever had been married. Likewise, fewer of these adults had children. Education levels higher than the general population were reported, with a substantial number of persons with graduate and professional degrees. Very few persons in this sample had not attended college. Further, the sample was fairly homogeneous with respect to occupation. The majority of persons in this sample were employed in professional and administrative capacities. This was true for men and women, and was not explained by education levels. Finally, the sample of fitness center patrons differed from the general population in the area of self-esteem. Not only were reported levels of self-esteem lower for this sample in all areas than the normative sample, the scores were also more homogeneous. In all areas of self-esteem, the fitness center patrons' scores were less variable than those of the normative sample.

Considering the assumptions inherent in the selection of this group for study, the sample, indeed, appears to represent people interested in exercise--a majority of the sample plan to exercise for the rest of their lives. While exercise histories vary, a commitment to exercise, nonetheless was present. Additionally, the mean score on the Perceived Benefits subscale was very high, suggesting that these people viewed exercise as a method for achieving some personal and health gains. Further, the exercisers reported that they enjoy exercising and feel happier when they exercise. These positive

feelings may act as aids in continuing in the pursuit of fitness. Still, these persons report that programs must be conveniently available in order for them to participate. Perhaps too many obstacles along the path to fitness would lead persons away from their fitness goals.

The sample of fitness center patrons was broken down into subgroups along many demographic and lifestyle markers. Overall, subgroup differentiation by usual demographic markers, such as age, gender, and marital status, was not useful. These markers did not allow for differentiation in self-esteem, perceived benefits, perception of physical self, or social and family influences. Age, as a factor, interacted with exercise history on the Physical Self-Esteem subscale and appears related to perceptions of health. However, age is not a useful marker for the other subscales. Similarly, gender interacted with age and exercise plans for the Perceived Benefits subscale. Again, however, gender was not useful for other subscales.

Men and women differed in reported exercise histories. While the men represent a fairly homogeneous group, reporting intermediate ranges of exercise histories, the women represent two separate groups of individuals--those who have only recently begun to exercise and those who have exercised for most of their lives. In addition, women placed more importance on encouragement by program staff. Traditionally, women are "allowed" to need help and encouragement. Men may, therefore, reject or ignore a need for encouragement in their exercise programs. Further differentiating men and women in the sample is education level-- men more often have graduate degrees, again reflecting societal gender role expectations.

Sample characteristics included associations expected for the general population. For instance, younger persons were more often single and had fewer children than older persons. This association falls within normal developmental milestone time frames. Also expected was the paucity of advanced degrees among younger respondents, for they have not yet had the opportunity to achieve these levels of education, within usual societal constraints. However, the larger number of advanced degrees in the older group is somewhat surprising, and may reflect the select nature of these fitness seekers. In fact, many of the respondents specified their advanced degrees as medical specialties.

Exercise plans were associated with several of the independent variables. Older respondents seldom reported short-term expectations of continued exercise involvement, while younger persons reported a full range of plans, from short- to long-term. Perhaps, the older respondents represent persons who have succeeded with their past exercise commitments, and thus, forsee continued involvement. In fact, exercise may now be an integral aspect of their lifestyles. Supporting this interpretation is the tendency for persons with long-term exercise histories to report long-term exercise plans and for persons who have only recently begun to exercise to commit to only short-term plans. A short-term commitment would allow for an ego-syntonic withdrawal from an unsuccessful effort, or from an activity which does not "fit" in the emerging lifestyle of the individual. Conversely, perceived success with a short-term commitment to an exercise program, then allows for a revised, longer-term commitment. If the exercise program fits in a person's lifestyle, it may then be incorporated on a firmer, long-term basis.

Similarly, an association between exercise plans and number of unsuccessful weight loss programs was observed. Persons who had experienced one unsuccessful weight loss program tended to commit themselves to short-term plans. Perhaps, the failure at a health-related endeavor led these persons to approach new health-related programs with caution. In light of the willingness of persons who have failed at more than one weight loss program to commit to long range plans, a more plausible explanation may be that these one-time failure persons are not willing to stay in any program that does not provide immediate success. Persons who have engaged in repeated efforts, however, have demonstrated greater persistence in an effort to achieve a valued goal, despite failure experiences.

Self-Esteem

A puzzling finding is the consistently low self-esteem scores for the sample. Fitts' (1965) participants were a diverse group. Education levels were reported to range from grade 6 through Ph.D., and ages ranged from young adult through elderly. The 1965 sample reported higher levels of overall self-esteem, physical self-esteem, personal self-esteem, family self-esteem, and social self-esteem. One plausible explanation might be that the present sample is given to stricter self-criticism, thereby leading to lower self-esteem. However, this group also reported lower levels of capacity for self-criticism.

Alternatively, the lower self-esteem scores in the present study may reflect upon Fitts' norms, rather than the members of this sample. The Tennessee Self-Concept Scale normative data was collected in 1965—20 years before the present study. American society and, presumably, attitudes of American adults, have changed considerably. Thus, the present data support a need for contemporary norms for the

Tennessee Self-Concept Scale. Without this new data, the scale will be useful only for within group comparisons, not for comparisons with the population at large.

Updated norms may demonstrate this group to, in fact, report lower self-esteem scores. Perhaps persons who decide to improve their fitness levels are prone to more frequent self-evaluation. If the focus is on deficit areas, then self-esteem may be lower due to this negative focus. If, instead, the self-evaluation assumed a neutral focus, that is, examined strengths and weaknesses, the overall evaluation might be expected to be higher. The present data do not allow for answers to these questions. Yet, the lower self-esteem , if confirmed with updated norms, would merit more extensive study.

Earlier studies suggested that self-esteem is enhanced by aerobic training (Brown, Morrow, & Livingston, 1982; Folkins & Sime, 1981; Hilyer & Mitchell, 1979). If this is true, then the present sample would, necessarily, have had even lower feelings of self-worth before beginning their exercise programs. However, these earlier studies share a common methodological problem. Participants were all sedentary individuals monitored prior to and following fairly short (i.e. 14 weeks) exercise programs. Thus, the enhanced self-esteem may be a result of a short-term lifestyle change. If exercise is continued, self-esteem levels may return to near pre-morbid levels. Indeed, in the present sample, the highest overall self-esteem scores were reported by college educated persons who plan to exercise for many more years, and who had exercised for 6 months or less. The later trend was for higher scores with longer histories, following a sharp drop in the 6 month to 1 year exercise group. Initial physical gains with a new exercise program occur rapidly, but later decline. Thus, this markedly low self-esteem in persons who

have exercised for 6 months to 1 year may result from the decline in visible physical gains. The early feelings of self-worth following rapid gains dissipate as the exerciser must work much harder and longer to achieve similar gains. Of course, these data were collected cross-sectionally, not longitudinally. Thus, differences may not actually represent behavior over time. Yet, were the cross-sectional results to be confirmed by a longitudinal study, an explanation for earlier findings would be enhanced. These data suggest that earlier conclusions were in error--enhanced physical condition may lead to immediate, but not to long term self-concept enhancement.

Within this sample, self-esteem stemming from a sense of physical value was related to exercise history in the 40 and older group. Longer exercise histories were associated with higher physical self-esteem scores. The data do not allow for an objective comparison of physical fitness, thus several interpretations may be considered. Persons with histories of 2 years or more may, in fact, be in better physical shape, and have higher self-esteem. Alternatively, these people may feel more certain about their abilities to continue in an exercise program, and may thus have higher self-esteem than persons who question their abilities. In fact, when considering all age groups, the latter explanation is more plausible. When exercise is incorporated into a lifestyle, exercisers engage in less questioning of their reasons for exercise and less negative self-regard.

Self-esteem related to one's personal self-worth, apart from physical, social, and family factors yielded some expected results. Persons planning to continue to exercise for up to 6 months, perhaps testing the fit of this new lifestyle component, reported lower personal self-esteem than those who reported plans to continue to exercise for 2

years or more, for whom exercise is an established lifestyle component. This effect is enhaced when unsuccessful weight loss programs (i.e. personal failure experiences) are condsidered. One such program, demonstrating lack of persistence, and plans for exercise of up to 6 months are associated with lower self-esteem. Thus, exercise plans and history appear indicative of the extent to which exercise has become a facet of the individual's lifestyle.

The Physical Fitness Profile

This scale produced three meaningful, reliable subscales, which were used in subsequent analyses. While many items did not belong to any of the subscales, they provided interesting data on the attitudes of members of the sample. However, for future study, these "extra" items may be deleted.

The Perception of Physical Self scale is an index of an individual's appraisal of physical state--appearance, health, and fitness. In this study, significant predictors of this appraisal are Physical Self-Esteem, exercise plans, exercise history, and unsuccessful weight loss programs. Thus, if a person feels valuable in the physical domain, he or she will tend to have a high perception of self-fitness. Additionally, the more unsuccessful weight loss programs a person has been involved in, the lower will be the expected appraisal of fitness. Perhaps, the negative experience regarding a personal goal (weight loss) leads to a focus on negative aspects in appraising fitness. Further, a longer exercise history and a longer period of exercise plans are associated with a higher self-appraisal of fitness. An individual who has taken an active interest in health related behavior (exercise) and who plans to continue to exercise, may then have a positive view of the physical self. Alternatively, a high appraisal of fitness, particularly if this is attributed

to active exercise participation, may lead to a positive attitude toward exercise and longer exercise plans than a low appraisal of fitness--a negative exercise experience. Nonetheless, a person's plans, history, physical self-esteem, and weight loss failure rate are related to his or her fitness appraisal.

A second subscale is the Perceived Benefits subscale, which assesses a variety of benefits attributed to exercise. This scale is significantly related to Personal Self-Esteem, Family Self-Esteem, and Self-Criticism. Concerning the latter, a person attuned to his or her strengths and weaknesses may also be more aware of benefits derived from various activities, than would a person who is not prone to self-evaluation. A regression analysis led to the conclusion that exercise plans and sex were significant predictors of the Perceived Benefits Score. Females tend to report more benefits related to exercise than do males. Further, the longer one plans to exercise, the higher the score on the Perceived Benefits subscale. A plausible explanation is that persons who feel that exercise leads to improvements in various life spheres are more likely to plan to continue exercising than are persons who perceive few benefits as a result of exercise.

The Family and Social Influences subscale addresses the values and expectations of family and signigicant support sources concerning physical fitness. The scale is significantly related to Physical Self Esteem. Perhaps, then, if one's physical state is congruent with the values and expectations of important others, self-esteem related to physical state will be high. Further, older women who have exercised for long periods of time report higher scores than those who have not exercised as long. High value of fitness and expectations for fitness on the part of family and friends may facilitate

continued involvement in an exercise program.

A fourth meaningful factor was extracted from the scale, but failed to reach an acceptable level of internal consistency for a subscale. When item 7, relating to being overweight, was dropped, Cronbach's alpha for the subscale increased to .39. While not high enough for this study, it is considered a valuable cluster of 6 items to be developed for future work. The Perception of Weight factor includes items addressing body image and appraisal, and attitudes toward eating. One possibility to improve the internal consistency of the subscale is to make the item phrasing more similar. For instance, "I am too thin", and "I am overweight", require an appraisal of current state. A better phrase might assess desire for change, e.g. "I want to be thinner than I am". For example, a person may correctly view himself of herself as too thin, yet not desire to alter that state. This revised phrasing might, then, be more meaningful, and relate more directly with other items assessing desire for change. Since our society places such emphasis on dieting and actively changing body size, a subscale addressing this issue as part of a physical fitness attitude questionnaire would be a valuable addition.

Implications

The data from exercisers collected for this study were cross-sectional in nature, not longitudinal. Thus, apparent elevations and decreases in self-esteem with exercise history may be attributable to some other cohort effect. A longitudinal study with an adequate control group is in order before the self-esteem changes may be attributed to time in the exercise program. However, initial involvement may lead to a transient elevation in self-esteem which is followed by a decline, after a period on the order of six months of continued involvement. Thus, fitness promotion should not be suggested as a

means to elevate self-esteem. Rather, other known benefits should be stressed--i.e. physiological improvements, feeling happier, and enhanced feelings of physical attractiveness and health.

Higher self-esteem in personal spheres may act as a facilitator of sustained involvement in an exercise program. Additionally, support of family and friends, through value of the fitness endeavor, and expectations of continued involvement may aid exercisers in staying with their exercise plans, despite difficult times and periodic low self- evaluation.

The finding of limited value of usual demographic markers in predicting group membership carries several implications. Fitness center operators should not plan programs based upon factors such as age and gender. More important information in predicting an individual's commitment to and success in a program would include data concerning past exercise involvement and plans for continuing to exercise. These lifestyle indicators proved to be more salient in the present study. Researchers in fitness and health-related fields should also be aware of the limited utility of these demographic markers. Further, the need for contemporary norms for the Tennessee Self-Concept Scale was clearly demonstrated. In order to compare fitness seekers to the general population, adequate normative data is required.

Finally, the Physical Fitness Profile provides three subscales of value to fitness center practitioners and to researchers. For practitioners, the items address areas of expected gains, beliefs about one's physical state, and influences by friends and family

on exercise. Researchers may utilize this questionnaire to tap areas not addressed by currently-available measures. Future work to more fully develop the fourth subscale, addressing weight beliefs and body image, will yield a solid, valuable instrument.

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TABLE 1

F-VALUES OF ANOVAS FOR PHYSICAL FITNESS PROFILE SUBSCALES

Subscale	AxBxC	AxB	AxC	BxC	A	B	C
SPHY	1.10	0.44	0.74	1.62	6.86*	8.42*	3.77*
	BxDxE	BxD	BxE	DxE	B	D	E
SPHY	--	1.36	1.15	0.14	11.50*	3.06*	1.63
PRBN	0.17	2.47*	0.21	4.11*	3.61*	3.79*	5.90*
SFAM	2.05*	0.56	1.20	0.66	4.60*	0.43	0.39
	AxDxE	AxD	AxE	DxE	A	D	E
PRBN	0.22	1.59	0.42	0.33	5.88*	1.48	1.26
	CxDxE	CxD	CxE	DxE	C	D	E
SFAM	0.38	0.68	0.86	0.63	3.86*	0.71	0.40

Note. A = Exercise Plans. B = Exercise History. C = Unsuccessful Weight Loss Programs. D = Age. E = Sex. SHPY = Perception of Physical Fitness. PRBN = Perceived Benefits. SFAM = Social and Family Influences.

*$p < .05$.

TABLE 2

F-VALUES OF ANOVAS FOR TSCS SUBSCALES

Subscale	AxBxC	AxB	AxC	BxC	A	B	C
PES	0.68	1.32	3.58*	0.17	1.84	0.83	4.64*
	BxDxE	BxD	BxE	DxE	B	D	E
PHS	1.57	2.07*	1.03	2.45	1.67	4.85*	0.69
	AxDxE	AxD	AxE	DxE	A	D	E
PES	4.39*	1.93	1.09	2.71	2.33	2.04	0.02
	AxBxF	AxB	AxF	BxF	A	B	F
P	4.95*	1.45	0.01	1.24	2.94	0.76	0.37

Note. A = Exercise Plans. B = Exercise History. C = Unsuccessful Weight Loss Programs. D = Age. E = Sex. F = Education.

PES = Personal Self-Esteem. PHS = Physical Self-Esteem.

P = Overall Self-Esteem.

*$p < .05$.

TABLE 3

MEANS AND STANDARD DEVIATIONS OF TSCS SUBSCALES FOR PRESENT SAMPLE AND FITTS' SAMPLE

TSCS Subscales	Sample (N=212)		Fitts' Sample (N=626)			
	M	SD	M	SD	t	F
Total P	268.20	7.24	345.57	30.70	102.54*	17.98
SC	28.20	3.39	35.54	6.70	20.68*	3.91
PHS	52.10	3.63	71.78	7.67	49.74*	4.46
PES	56.28	4.35	64.55	7.41	19.63*	2.90
FS	55.12	3.71	70.83	8.43	37.14*	5.16
SS	55.14	3.40	68.14	7.86	22.65*	5.34

*p < .05.

Please read the following statements and circle the number which corresponds to your reaction to each statement.

Strongly disagree	Moderately disagree	Slightly disagree	Neutral	Slightly agree	Moderately agree	Strongly agree
1	2	3	4	5	6	7

P1. My body is in top physical condition. 1 2 3 4 5 6 7
B2. My physical health has improved since I began exercising. 1 2 3 4 5 6 7
*W3. I am too thin. 1 2 3 4 5 6 7
4. My most important family members are supportive of my exercise regimen. 1 2 3 4 5 6 7
B5. I want to improve the condition of my body. 1 2 3 4 5 6 7
*P6. My physical health is poor. 1 2 3 4 5 6 7
W7. I am overweight. 1 2 3 4 5 6 7
B8. I exercise to improve my appearance. 1 2 3 4 5 6 7
P9. I am in better physical condition than most of my friends.1 2 3 4 5 6 7
F10. When I was young, my family encouraged exercising. 1 2 3 4 5 6 7
P11. Most of my weight is muscle weight rather than fat weight.1 2 3 4 5 6 7
12. Other people influenced my decision to exercise regularly.1 2 3 4 5 6 7
F13. Physical conditioning is valued in the family I live with.1 2 3 4 5 6 7
B14. I feel happier when I exercise regularly. 1 2 3 4 5 6 7
P15. I am in better physical condition than others who exercisei 2 3 4 5 6 7
PB16. The older I get, the better condition I am in. 1 2 3 4 5 6 7
*F17. The family I grew up in discouraged my exercising. . . . 1 2 3 4 5 6 7
W18. My body size has changed since I began exercising. 1 2 3 4 5 6 7
19. People see me as thinner than I am. 1 2 3 4 5 6 7
P20. I am satisfied with my body's appearance. 1 2 3 4 5 6 7
21. I am capable of more physical exercise than I typically engage in. 1 2 3 4 5 6 7
22. I prefer to exercise with others. 1 2 3 4 5 6 7
B23. I enjoy working out. 1 2 3 4 5 6 7
F24. When I was young, my friends engaged in a lot of exercise activities. 1 2 3 4 5 6 7
W25. I have often dieted in my lifetime. 1 2 3 4 5 6 7
26. Cost influences my ability to take advantage of fitness programs. 1 2 3 4 5 6 7
P27. My friends see me as physically fit. 1 2 3 4 5 6 7
28. People see me as more overweight than I am. 1 2 3 4 5 6 7
29. Models in magazines make me feel out of shape. 1 2 3 4 5 6 7
30. When I started the Nautilus program, I wanted to add anaerobic conditioning to an already established aerobic exercise program. 1 2 3 4 5 6 7
P31. I like my body shape. 1 2 3 4 5 6 7
F32. I tend to choose friends who are physically fit. 1 2 3 4 5 6 7
P33. When I started the Nautilus program, I mostly did so because I was out of shape. 1 2 3 4 5 6 7
34. Personal attention by staff members is important in my pursuit of physical fitness. 1 2 3 4 5 6 7
*P35. I want to change my body size. 1 2 3 4 5 6 7
*P36. My body is in poor physical condition. 1 2 3 4 5 6 7
37. Encouragement by program staff is an important component of my program. 1 2 3 4 5 6 7
38. My physical condition is not as good as it was. 1 2 3 4 5 6 7

Strongly disagree	Moderately disagree	Slightly disagree	Neutral	Slightly agree	Moderately agree	Strongly agree
1	2	3	4	5	6	7

B39. I am less likely to suffer from heart disease if I exercise. 1 2 3 4 5 6 7

F40. The family I grew up in expected me to be in top physical condition. 1 2 3 4 5 6 7

B41. I am able to improve the physical condition of my body. . 1 2 3 4 5 6 7

42. Members of the family I live with need to improve their physical condition. 1 2 3 4 5 6 7

43. An exercise program must be conveniently available in order for me to take advantage of it. 1 2 3 4 5 6 7

W44. Food was very important in the house in which I grew up. .1 2 3 4 5 6 7

W45. A family member often fixed an afternoon snack for me. . .1 2 3 4 5 6 7

W46. My same sex parent was overweight. 1 2 3 4 5 6 7

47. The members of the family I grew up in hardly ever got in trouble with the law. 1 2 3 4 5 6 7

48. When I was growing up I hardly ever got in trouble with the police. 1 2 3 4 5 6 7

49. Members of the family I grew up in needed to improve their physical condition. 1 2 3 4 5 6 7

F50. The family I live with expects me to be in top physical condition. 1 2 3 4 5 6 7

51. The family I live with discourages my exercising. 1 2 3 4 5 6 7

F52. Physical conditioning was valued in my family of origin. .1 2 3 4 5 6 7

B53. One benefit I receive from exercise is increased endurance1 2 3 4 5 6 7

B54. I feel better about myself when I exercise regularly. . . 1 2 3 4 5 6 7

55. I started aerobic exercising due to a chronic condition. .1 2 3 4 5 6 7

B56. I feel less stressed when I exercise regularly. 1 2 3 4 5 6 7

B57. One benefit I receive from exercise is increased muscle tone. 1 2 3 4 5 6 7

B58. I am more attractive when I exercise regularly. 1 2 3 4 5 6 7

59. I started anaerobic conditioning due to a chronic condition. 1 2 3 4 5 6 7

60. I suspect I will continue exercising as much or almost as much as I do now for the next:

6 months	6 months to 1 year	1 to 2 years	2 to 4 years	4 to 6 years	6 to 10 years	for the rest of my life
1	2	3	4	5	6	7

D61. I have been exercising regularly for:

less than 6 months	6 months to 1 year	1 to 2 years	2 to 4 years	4 to 6 years	6 to 10 years	most of my life
1	2	3	4	5	6	7

D62. How many unsuccessful weight loss programs have you been involved in?

1	2	3	4	5	6	7 or more

D63. My highest level of education attained is:

Some high school	high school graduate	2 years college	4 years college	some grad. school	Masters level	PhD,MD DDS
1	2	3	4	5	6	7

D64. My occupation is:
1 Executive, Administrative, Managerial
2 Professional Specialty
3 Technical, Sales, Clerical
4 Farming, Forestry, Fishing
5 Precision Production, Repair Occupation
6 Operators, Assemblers, Laborers
7 Service Occupation

D65. My age is:

less than 20	20-24	25-29	30-39	40-49	50-59	60 or older
1	2	3	4	5	6	7

D66. I am (check): ___male ___female

D67. I am (check):
___single ___separated ___divorced ___married ___remarried

D68. I have _____ (specify number or no) children.
Their ages are: _____
_____
_____

Note. P = Perception of Physical Self Items
B = Perceived Benefits Items
F = Family and Social Influences Items
W = Perception of Weight Items
* = Items coded negatively in subscale scores